

A NEW SPECIES OF *ASHMUNELLA*
(PULMONATA: POLYGYRIDAE)
FROM THE DAVIS MOUNTAINS, TEXAS

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ABSTRACT

Ashmunella sprouli Fullington and Fullington is the third species of this genus described from the Davis Mountains, Jeff Davis County, Texas. The type locality is a localized colony in an igneous talus slide above No. 10 Spring, Hell's Canyon, on the R. E. Sproul Ranch.

Ashmunella sprouli
Fullington and Fullington, spec. nov.
(Figures 1 to 3)

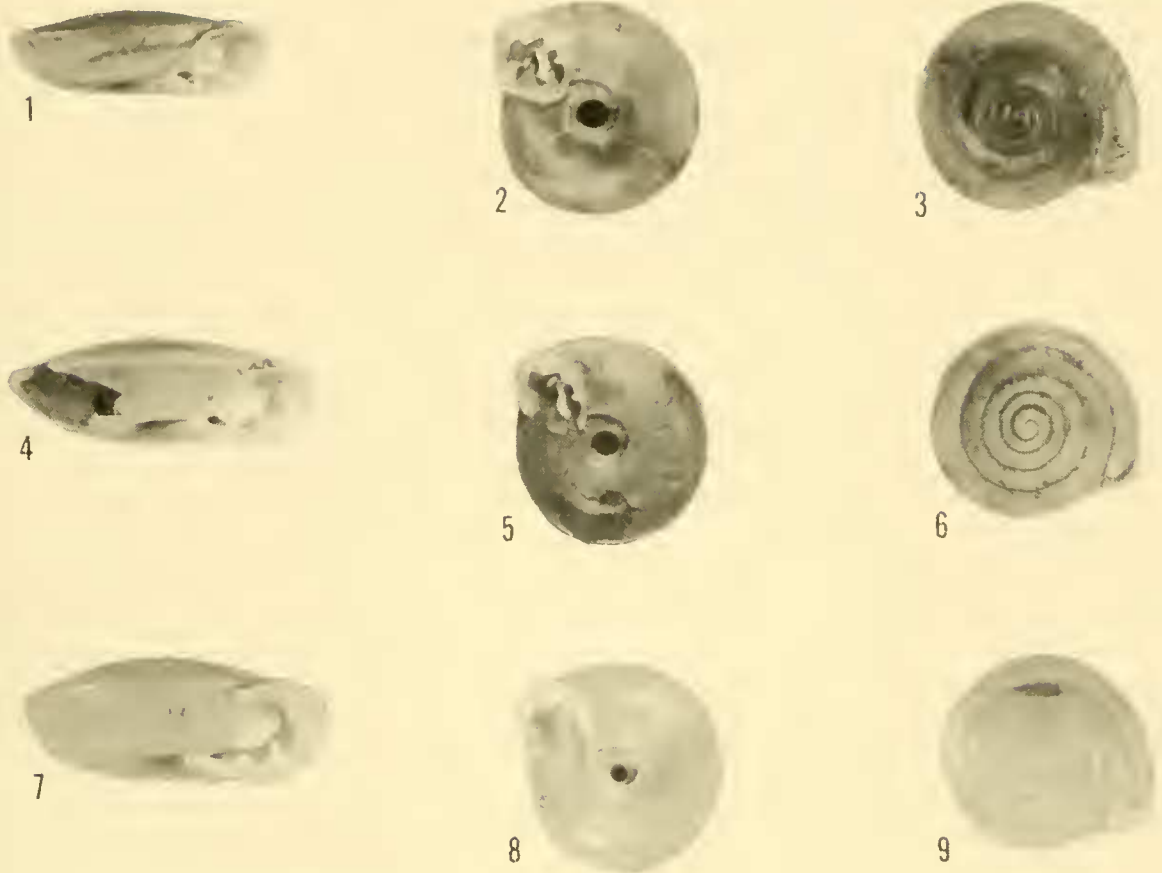
Holotype description - Shell light-brown, slightly convex above (although 5 of the 41 collected specimens were dorsally flattened or even concave), and moderately umbilicate (umbilical width, 3.41 mm; contained $3.4 \times$ in shell diameter). Whorls, 5 1/2, tightly coiled; suture lines slightly indented. Periphery sharply carinated and the last whorl is deflected downward immediately behind the peristome. The peristome thin and expanded, but not flanged. Two parietal teeth; the upper is shorter, more degenerate than the larger, s-shaped lower parietal. The larger parietal tooth bends toward the upper parietal at its upper end. The peristome contains 3 palatal teeth. The uppermost is elongate, and rests very obliquely across the nearly converging parietals. Basally, two laterally compressed teeth are connected by a small, raised ridge slightly below the peristome. The two teeth are equidistant externally but strongly diverge as they continue 1.4 mm into the aperture. They may be observed as two white lines through the thin shell. The expanded peristome is continuous across the parietal wall and slightly elevated. The upper shell surface is marked by fine, curved spiral striae evenly spaced from the protoconch until the penultimate whorl where they become irregularly spaced and

larger, resembling wrinkles more than striae. Ventrally, the striae are fine, evenly spaced to the peristome and continue to the umbilicus. The entire surface is covered by rows of structures termed cuticular scales by Clench and Miller (1966:2). The scales are embedded only in the periostracum.

Measurements (mm):

	<i>Diameter</i>	<i>Height</i>
Holotype	12.65	4.82
Paratypes	12.17	3.70
	12.69	4.40
	12.00	3.75
	11.82	3.81
	12.29	3.74
	11.30	3.65
	11.51	3.71

Genitalia: The genitalia of *Ashmunella sprouli* (fig. 10) are similar to those of *A. bequaerti* as described by Clench and Miller (1966:3). However, they differ in several respects. The penial retractor muscle is attached to the epiphallus much higher than the attachment site on *A. bequaerti* and the epiphallus itself is much shorter, but the flagellum is much longer. The most obvious difference is in the length of the prostate gland. In *A. bequaerti*, it travels the entire length of the uterus touching the albumen gland. In the new species, it extends only half the length of the uterus. Externally, the peristome of *A. sprouli* is



FIGS. 1-3. *Ashmunella sprouli* Fullington and Fullington, new species. Holotype; $\times 2.1$; FIGS. 4-6. *A. bequaerti* Cleuch and Müller, 1966; Topotype; $\times 2.1$; FIGS. 7-9. *A. mudgei* Cheatum, 1970. Holotype; $\times 1.8$.

continuous forming a raised shelf across the parietal wall and the umbilical diameter is smaller. Although, the two species are externally similar with the exception of the peristome, we feel that the new species merits specific rank based upon the several differences in the two reproductive systems.

Structure	<i>bequaerti</i>	<i>sprouli</i>
Penis	5.0	5.14
Ephiphallus	24.0	10.35
Flagellum	1.5	1.73
Penial retractor	1.3	not measured
Spermatheca & duct	31.0	not dissected
		from sac
Vagina	4.0	2.61
Free oviduct	2.5	1.28
Atrium	1.0	1.14

Deposition of Specimens: holotype, Dallas Museum of Natural History (DMNH 5355); paratypes deposited California Academy of Sciences, Delaware Museum of Natural History (no. 119484) and United States National Museum.

Type Locality: Davis Mountains, Jeff Davis County, Texas. Spring No. 10 on north wall of Hell's Canyon just west of junction with Frazier Canyon 30° 40' 10" N Lat., 103° 5' 15" W Long. (U.S.G.S. map, Casket Mountain Quadrangle, 1972); Elev. 5500'; R. E. Sproul Ranch.

Habitat: On 24 July, 1975, forty-one (11 living) specimens of the new species were collected in a small talus slope just above the small spring emerging from a sheer igneous cliff face. The cliff is located in Hell's Canyon on the R. E. Sproul Ranch just north of Fort Davis, Texas. The coluvium is surrounded by dense, low vegetation,

large Red Oak trees (*Quercus gravessii*), Ash (*Fraxinus cuspidata*), Walnut (*Juglans microcarpa*) and Buckeye (*Aesculus* sp.). Maidenhair fern (*Addiantum* sp.) was abundant on rocks by the spring. Water from the spring cascaded almost 100 feet to the canyon floor. Specimens were dug from under leaf covered rocks. Rain was falling at the time of collection, but no live specimens were observed above ground. The collecting party consisted of the Dallas Museum staff members: Steven Runnels, Charles Meister, Ray Garza and the senior author.

COMPARISONS

This new species is the third *Ashmunella* to be described from the Davis Mountains; *Ashmunella mudgei* Cheatum (1970) (fig. 7 to 9) from Sawtooth Mountain on the west side and *Ashmunella bequaerti* (fig. 4 to 6) Clench and Miller (1966) which occurs in Goat Cave Canyon located ten miles north of Hell's Canyon. *A. mudgei* is a large, smooth shelled *Ashmunella* and bears no resemblance to *A. bequaerti* or to this species, although Bequaert and Miller (1973:39) considered *A. mudgei* a subspecies of *A. bequaerti*. Specifically, *A. bequaerti* and the new species are similar in external morphology and probably evolved from a single parental stock.

The colony of *A. sprouli* appears to be relatively small and extremely isolated as the canyon was investigated for some distance on either side of the spring and no additional specimens were collected. This situation is typical of the larger-sized land mollusks that inhabit the narrow steep-sided canyons in the Davis Mountains. Genetic studies will probably indicate that the whole Davis Mountains *Ashmunella* are inter-related but with extreme localized allelic fixation. Preliminary electrophoretic data on the *Humboldtiana* complex in the Trans-Pecos Mountains by Fullington and Zimmerman indicates that this is the case.

This species is named in honor of Mr. R. E. Sproul a rancher who has been an amateur naturalist most of his life. He has long encouraged and assisted in scientific studies of the Davis Mountains flora and fauna.

LITERATURE CITED

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 Clench, William J. and Walter B. Miller. 1966. A New Species of *Ashmunella* from West Texas (Mollusca: Pulmonata). *Brevioria*, Museum of Comparative Zoology, No. 244: 1-6

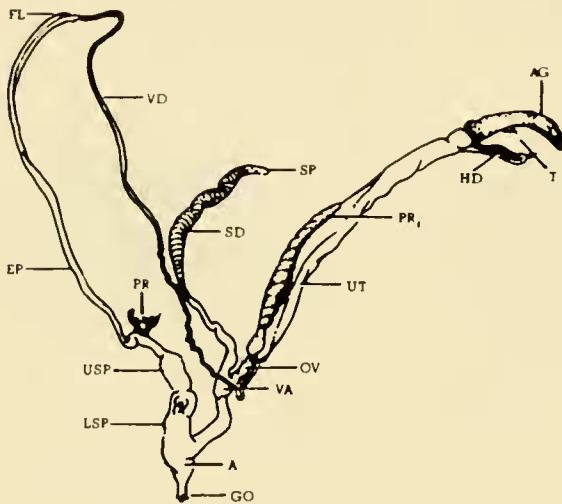


FIG. 10 *Ashmunella sprouli* Fullington and Fullington, new species. Genitalia of paratype. (DMNH 5356).

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| GO - Genital Orifice | A - Atrium |
| LSP - Lower Sac of Penis | USP - Upper Sac of Penis |
| PR - Penial Retractor Muscle | SP - Spermatheca |
| EP - Epiphallus | FL - Flagellum |
| VD - Vas Deferens | VA - Vagina |
| T - Talon | AG - Albumen Gland |
| OV - Oviduct | SD - Spermathecal Duct |
| UT - Uterus | PR - Prostate |
| HD - Hermaphroditic Duct | |